

PROMOTING HEALTHY ENVIRONMENTS FOR CHILDREN

Children Are Not Little Adults: Why Children's Environmental Health Matters



KEY POINTS

Children differ from adults physically, mentally, biologically, and socially, and are growing and developing. “Children” refers to infants, children, and adolescents.

- Environments free from hazards are best for children. Children may, however, encounter hazards such as chemicals in the environment (toxicants) as they move through their day.
- Children often are more vulnerable than adults to any hazards in the environment because they breathe more air, consume more food, and drink more water than adults do, in proportion to their weight.
- Children’s body systems – including the central nervous, immune, reproductive, and digestive systems – are still developing. During certain critical windows of time, exposure to environmental toxicants can lead to irreversible damage.
- Depending on their developmental stage, children behave differently from adults and have different patterns of exposure.
- Unlike adults, children have less control over their environments and may be unaware or unable to make choices that protect their health.

CLINICAL GUIDANCE

Pediatricians can help address environmental health concerns by:

- Educating families, children, and others about exposures, and how different developmental stages impact a child’s vulnerability.
- Asking about common potential exposures at home such as secondhand tobacco smoke, lead, and mold. If these are present, pediatricians can provide advice or resources for abatement.
- Giving other anticipatory guidance about preventable exposures. This includes assuring that the home has working smoke detectors and carbon monoxide detectors.
- Staying alert to unusual, persistent symptoms or situations where multiple people in the household are experiencing similar symptoms, and by identifying, diagnosing, and treating those individuals promptly.

A child’s exposure occurs within several environments during the course of the day. Vulnerability changes as children grow and experience new skills, abilities, and environments. Factors include:

- Children’s **physical location** throughout each day changes as they begin to walk, explore the neighborhood, and become more independent, leading to various exposures in different settings.

- **Breathing zones** are the physical areas where we typically breathe. The breathing zone for a toddler is closer to the ground where they may be more likely to encounter hazards.
- **Oxygen consumption** is higher for children. Therefore, they may be exposed to any toxicants in the air such as secondhand tobacco smoke and secondhand emissions from electronic cigarettes.
- **Quantity and quality of food consumed** may mean greater exposure to chemicals present in what they eat or drink.
- **Water intake** is also higher for children who have smaller bodies than adults and developing biological systems that process contaminants.
- Children are more vulnerable to topical contaminants because the ratio of surface area to body mass is larger than an adult's (depending on the age of the child).
- **Normal behavioral development**, including oral exploration and hand-to-mouth behaviors, increase exposure for infants and young children. These behaviors usually end in later developmental stages.

The manner in which a child absorbs, distributes, and metabolizes environmental toxicants is determined by that child's developmental stage and genetics.

- **Absorption** occurs through the placenta, through skin contact, inhalation, or the gastrointestinal tract.
- **Distribution** varies with body composition such as fat and water content, which vary by developmental stage.
- **Metabolism** may activate or deactivate toxicants, and varies based on the activity of enzymes at different developmental stages.

ADDITIONAL INFORMATION

Regulatory policies often do not take into account the unique combinations of developmental characteristics, physical environment, and biological environment that place children at risk. Additionally, not all industrial chemicals used in the United States are thoroughly tested for safety prior to application. Pediatricians can help address environmental health concerns of the patients and families they serve by advocating for environmental health laws that specifically address childhood needs and differences.

FOR MORE INFORMATION

The following resources offer additional information regarding children's development and environmental health:

- [Pediatric Environmental Health, 4th Edition](#) – AAP Policy Manual
- [Pediatric Environmental Health Specialty Units](#)
- [Bright Futures Guidelines and Pocket Guide](#)